

FILED

JAN 23 2013

SECRETARY, BOARD OF
OIL, GAS & MINING

Crandall Canyon Mine Water Discharge

January 23, 2013

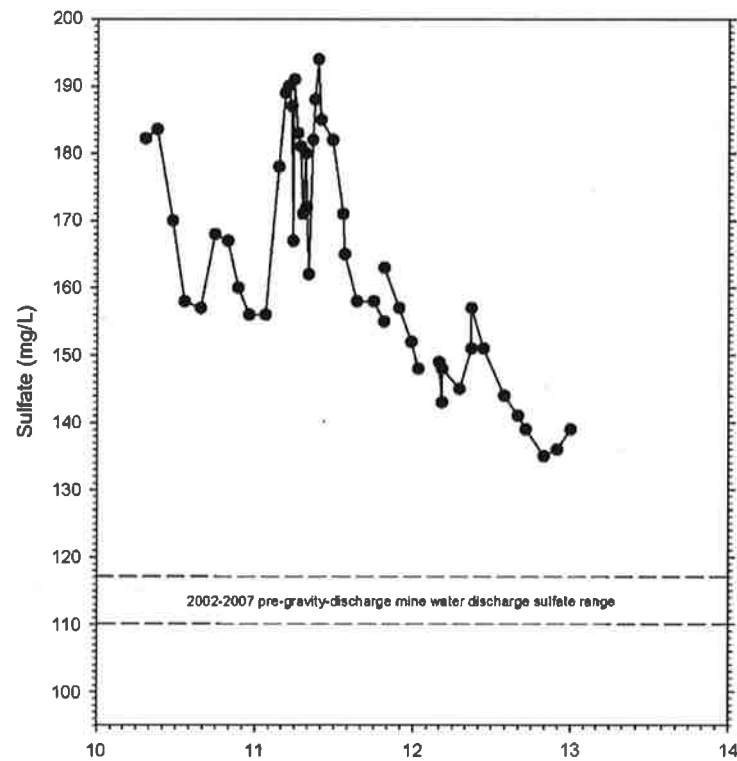
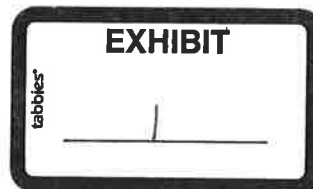


Figure 1 Sulfate concentrations in the Crandall Canyon Mine discharge water (site Pre-002).



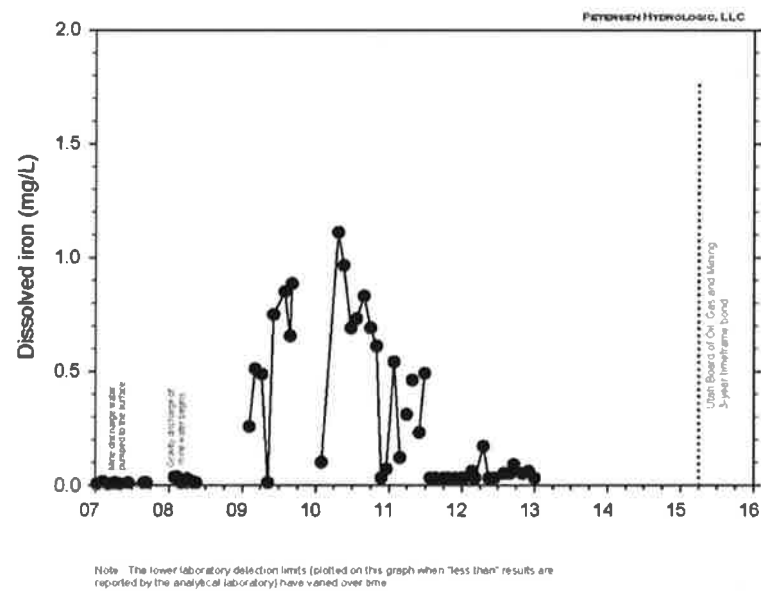
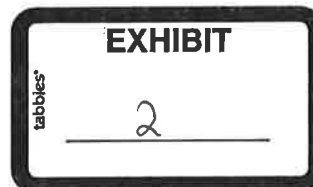


Figure 2 Dissolved iron concentrations in Crandall Canyon Mine pre-treatment discharge water, 2007-2012.



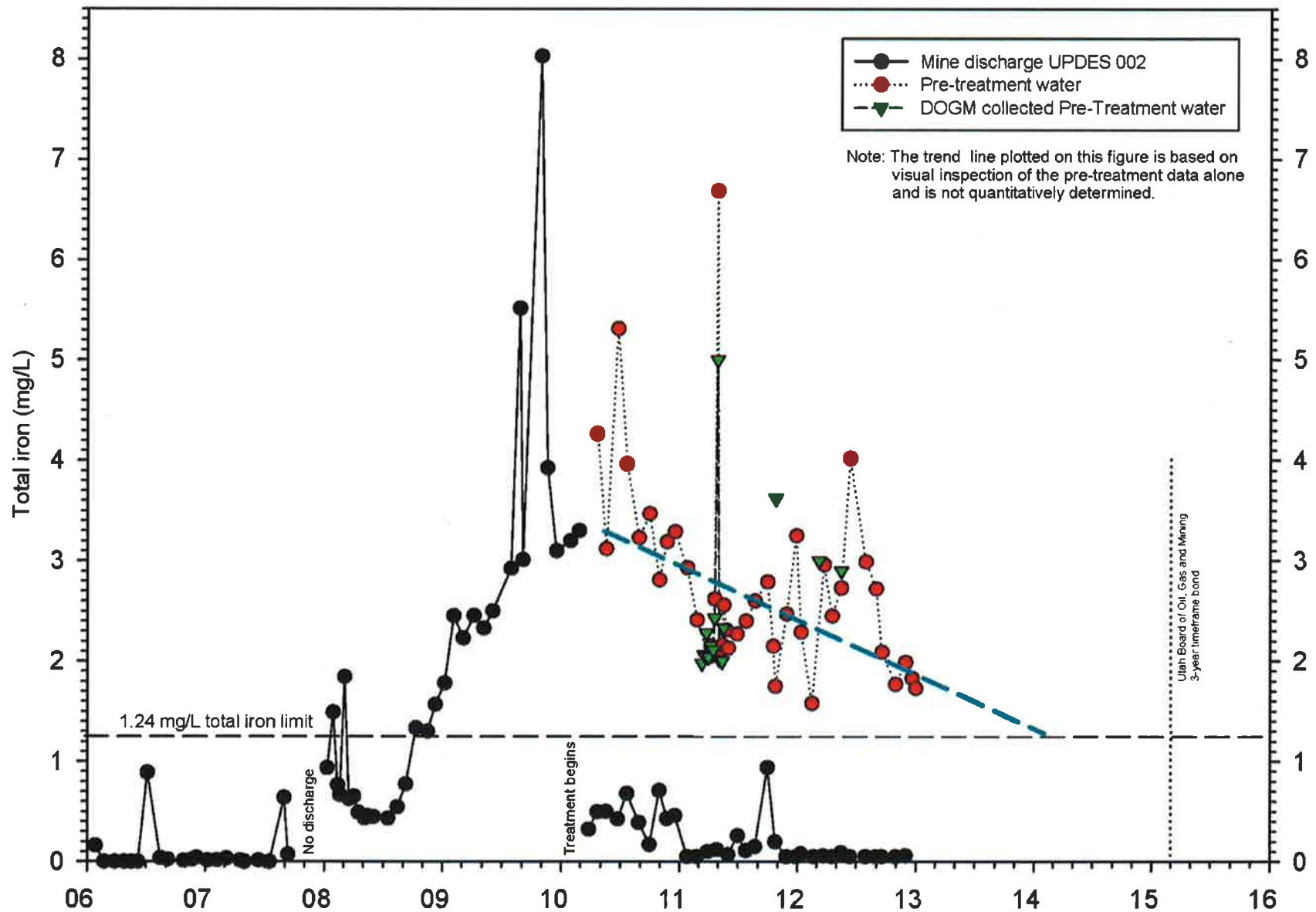
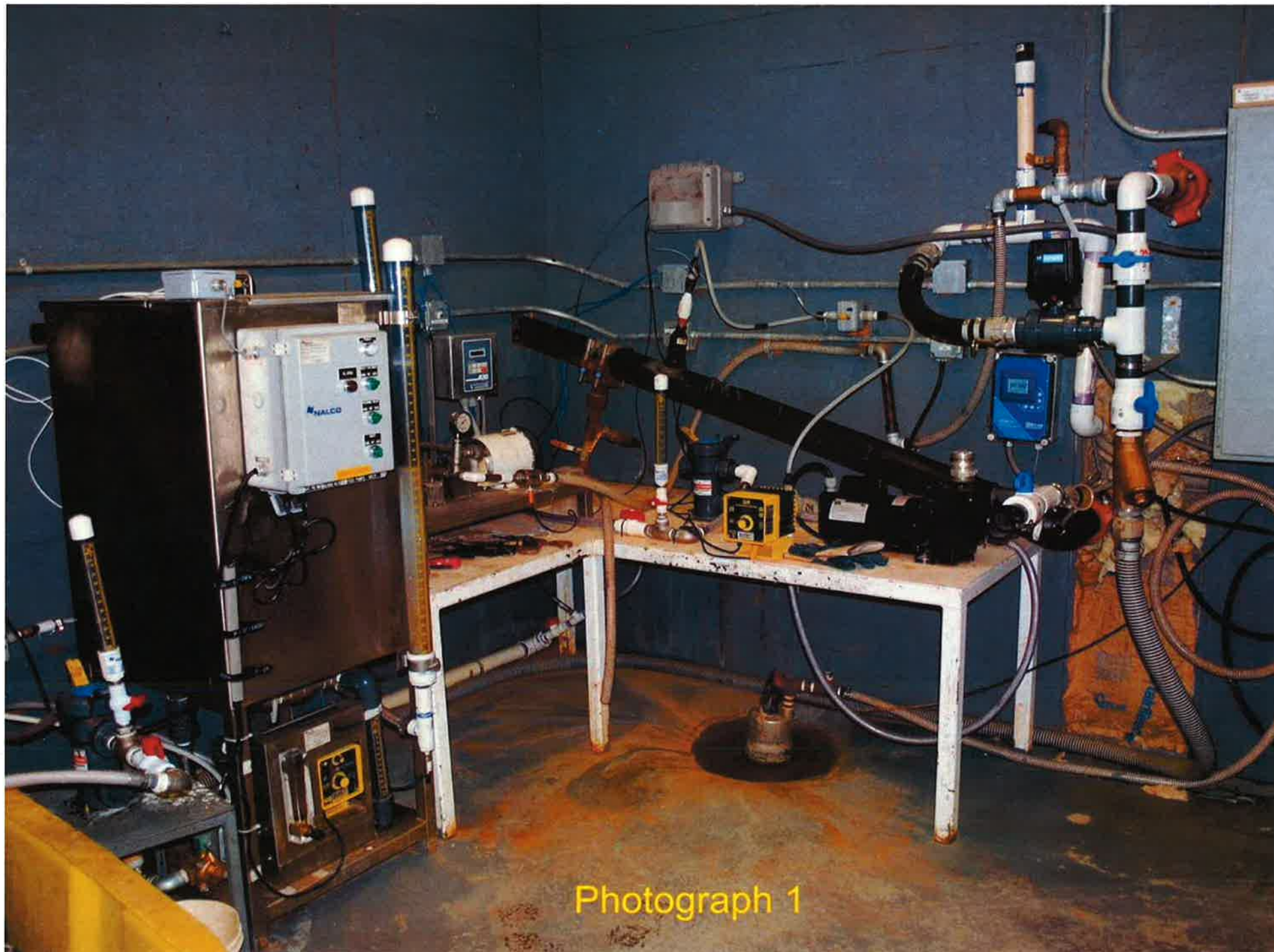


Figure 3 Plots of total iron concentrations in Crandall Canyon Mine discharge water and treated mine discharge water.

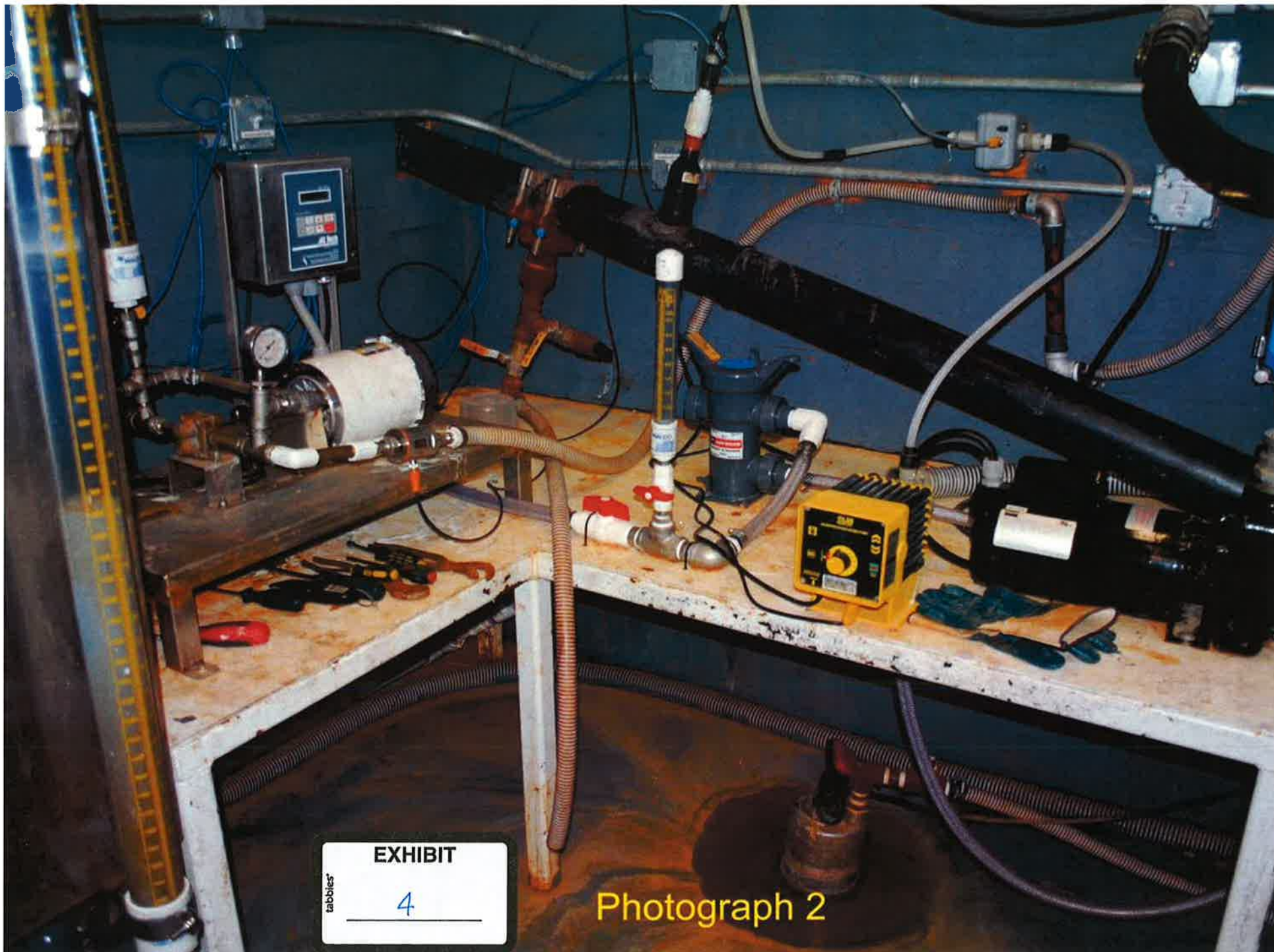
EXHIBIT

tabbles

3



Photograph 1



EXHIBIT

4

Photograph 2



Photograph 3



EXHIBIT
tabbies 5

Photograph 4



Photograph 5

density of about 3.9 g/cm³) on the order of three ten-thousandths of a cubic centimeter of particulate were to be included in the sample.

An investigation was performed to evaluate the performance of the newly constructed sampling port. On 20 December 2012, a series of samples of untreated mine discharge water were collected from the old existing port by Genwal Resources, Inc. personnel and analyzed for total iron content at SGS Minerals Service of Huntington, Utah. Samples were collected after 5 seconds, 30 minutes, 60 minutes, 90 minutes, and 135 minutes. Contemporaneous samples were also collected from the new continuous flow no-purge sampling port at the 60-, 90-, and 135-minute intervals. The results of these analyses are plotted in Figure 1 and summarized in Table 1 below. It should be noted that personnel from the Utah Division of Oil, Gas and Mining also collected samples of mine discharge water for total iron analysis during the testing period. As of the date of this report, we have not been provided with the results of the Division's total iron laboratory analyses.

Table 1 Results of mine discharge water sampling port purging investigation

Elapsed purging time since old port opened	Total iron concentration sampled from the old sampling port (mg/L)	Total iron concentration sampled from the new continuous flow no-purge sample port (mg/L)	Total iron concentration difference between two ports (mg/L and percent)
5 seconds	29.03	---	---
30 minutes	9.04	---	---
60 minutes	2.20	1.90	0.30 (15.8%)
90 minutes	2.00	1.88	0.12 (6.4%)
135 minutes	1.88	1.83	0.05 (2.7%)

It is evident in Figure 1 and Table 1 that purging of the old sampling port was apparently not complete until about 90 minutes or more had elapsed since the port was first opened. The sample collected after 30 minutes of purging had a total iron concentration of more than 9 mg/L, which is 4.8 times the final sample result collected after the purging was

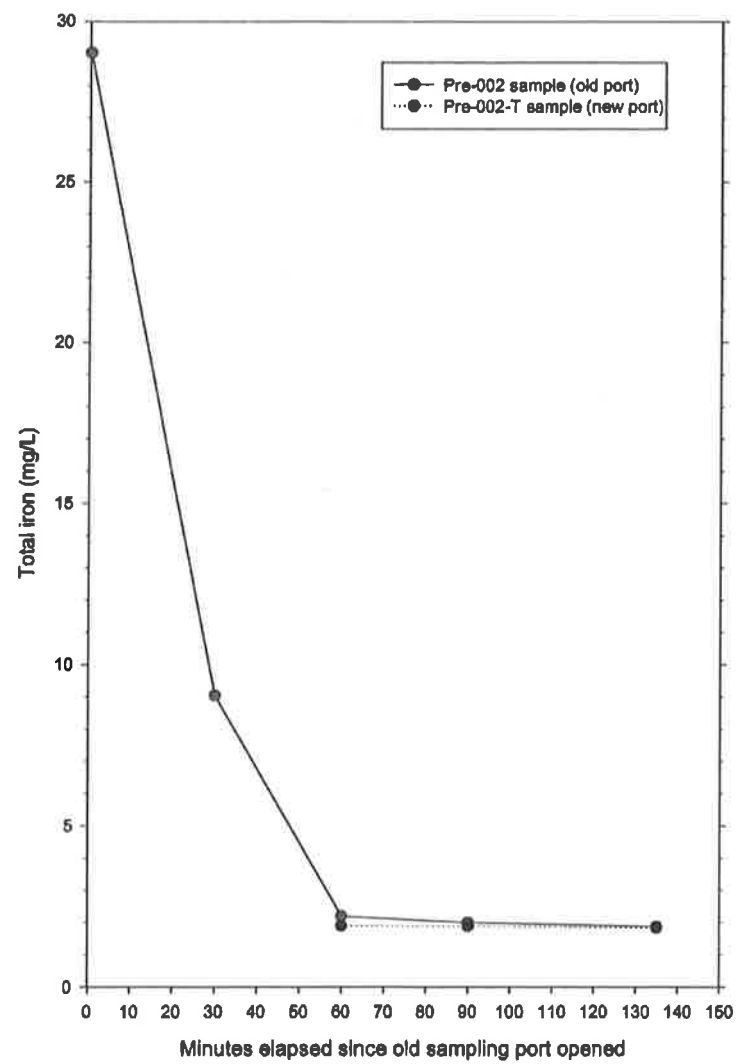
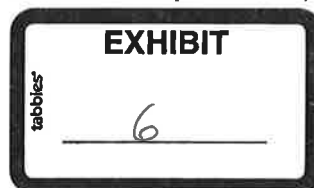
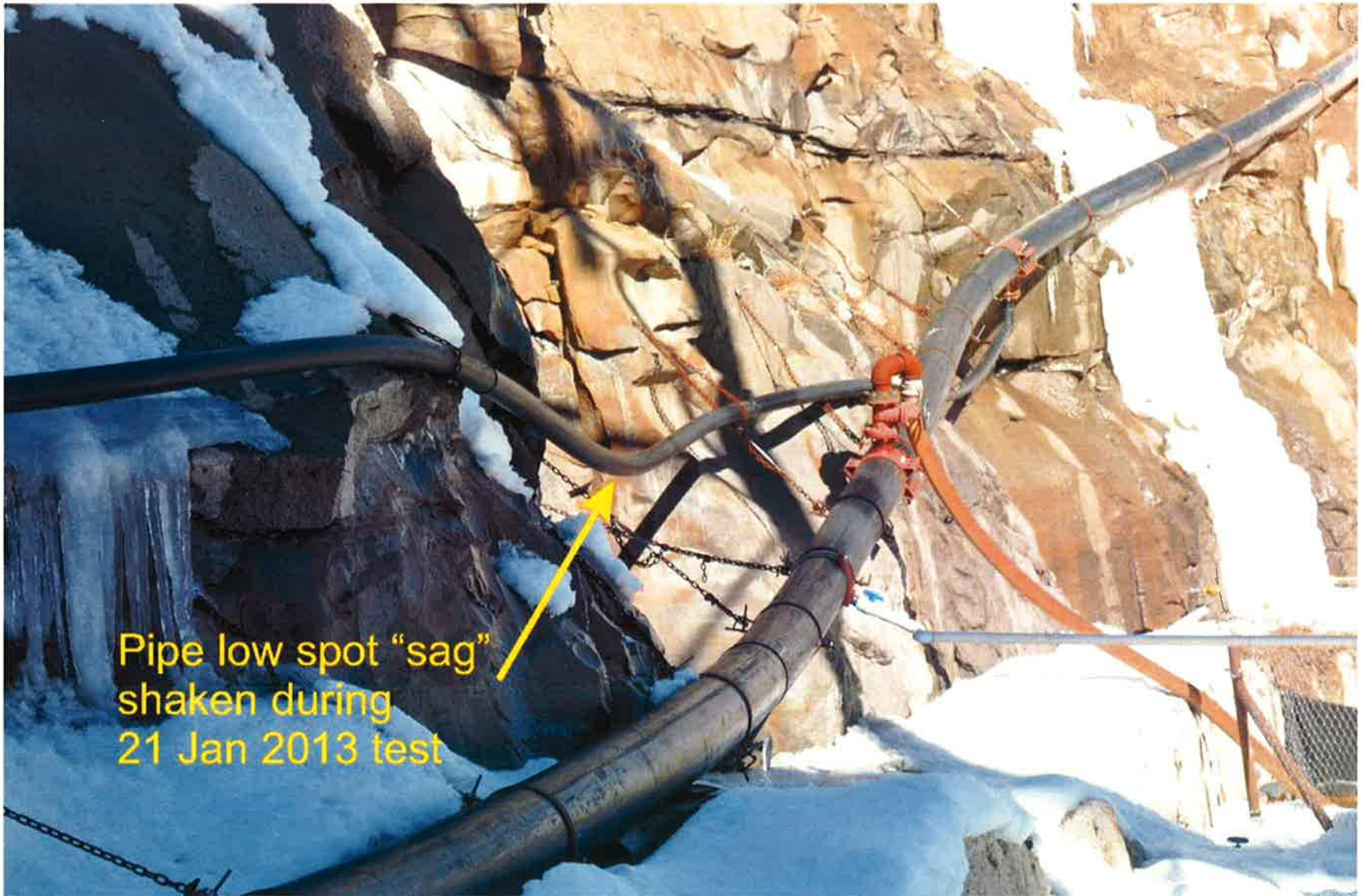


Figure 1 Total Iron data from Crandall Canyon Mine sampling port comparison study.











EXHIBIT

8

tabbles



